IN THE CLAIMS

Kindly revise claims 5, 8, 11 and 12 and add claims 15 and 16 as follows. The revisions to claims 5, 8, 11 and 12 are grammatical in nature and are not related to the patentability of these, or other, claims. No new matter has been added.

The following is a complete listing of revised claims with a status identifier in parentheses.

LISTING OF CLAIMS

1. (Original) A method comprising the steps of:

receiving at least M information-bearing signals; and

processing the at least M information-bearing signals for providing an optical wavelength division multiplexed signal having at least (N)(M) channels such that each information bearing signal is associated with a different N channels, where N is greater than or equal to two.

2. (Original) The method of claim 1 wherein the processing step further comprises the steps of:

processing each of the at least M information-bearing signals with N encoders for multiply encoding each of the at least M information-bearing signals onto the different N channels; and

multiplexing the (N)(M) encoded signals for providing the optical wavelength division multiplexed signal.

3. (Original) The method of claim 1 wherein N is equal to two.

4. (Original) The method of claim 3 wherein the processing step further comprises the steps of:

creating from the at least M information-bearing signals, M optical signals on M of the at least 2M channels;

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inverting each of the at least M information-bearing signals for providing M inverted signals;

creating from the M inverted signals, M inverted optical signals on the remaining at least 2M channels; and

multiplexing the M optical signals and the M inverted optical signals for providing the optical wavelength division multiplexed signal.

5. (Currently Amended) A method comprising the steps of:

demultiplexing a received optical wavelength division multiplexed signal comprising at least (N)(M) channels, wherein N is greater than or equal to two[[;]], for providing at least M groups of N optical signals; and

processing each of the M groups of N optical signals to provide an output signal.

6. (Original) The method of claim 5 wherein N is equal to two.

7. (Original) The method of claim 6 wherein the processing step further comprises the step of differentially decoding each of the M groups of two optical signals to provide the output signal.

8. (Currently Amended) ~~Apparatus~~ An apparatus comprising:

a number of encoders for multiply encoding each of at least M information-bearing signals onto N optical channels, where N is greater than or equal to two; and

a multiplexer for providing an optical wavelength division multiplexed signal having at least (N)(M) optical channels.

9. (Original) The apparatus of claim 8 wherein N is equal to two.

10. (Original) The apparatus of claim 9 wherein the number of encoders comprises M inverters for inverting each of the at least M information-bearing signals to provide M inverted signals.

11. (Currently Amended) The apparatus of claim 10 further comprising:

M electrical to optical converters for converting each of the at least M information-bearing signals into M optical signals on M different optical channels; and

M electrical to optical ~~converts~~ converters for converting each of the at least M inverted signals into M inverted optical signals on another M different optical channels.

12. (Currently Amended) ~~Apparatus~~ An apparatus comprising:

a demultiplexer for demultiplexing a received optical signal comprising at least (N)(M) optical channels, wherein N is greater than or equal to two, for providing at least M groups of N optical signals; and

a decoder for processing each of the M groups of N optical signals to provide an output signal.

13. (Original) The apparatus of claim 12 wherein N is equal to two.

14. (Original) The apparatus of claim 13 wherein each decoder is a differential detector.

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15. (New) A method comprising the steps of:

receiving at least M information-bearing signals;

processing the at least M information-bearing signals for providing an optical wavelength division multiplexed signal having at least (N) (M) channels such that each information bearing signal is associated with a different N channel, where N is greater than or equal to two, said processing step further comprising,

creating from the at least M information-bearing signals, M optical signals on M of at least 2M channels;

inverting each of the at least M information-bearing signals for providing M inverted signals;

creating from the M inverted signals, M inverted optical signals on the remaining at least 2M channels;

multiplexing the M optical signals and the M inverted optical signals for providing an optical wavelength division multiplexed signal;

demultiplexing the multiplexed optical wavelength division signal for providing at least M groups of at least 2M optical signals; and

processing each of the M groups of at least 2M optical signals, said processing step comprising differentially decoding each of the M groups of at least 2M optical signals to provide an output signal.

16. (New) A transceiver operable to:

receive at least M information-bearing signals;

process the at least M information-bearing signals to provide an optical wavelength division multiplexed signal having at least (N) (M) channels such that each information bearing signal is associated with a different N channel, where N is greater than or equal to two, said process further comprising,

creating from the at least M information-bearing signals, M optical signals on M of at least 2M channels,

inverting each of the at least M information-bearing signals for providing M inverted signals,

creating from the M inverted signals, M inverted optical signals on the remaining at least 2M channels,

multiplexing the M optical signals and the M inverted optical signals for providing an optical wavelength division multiplexed signal;

demultiplex the multiplexed optical wavelength division signal for providing at least M groups of at least 2M optical signals; and

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process each of the M groups of at least 2M optical signals by differentially decoding each of the M groups of at least 2M optical signals to provide an output signal.